

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
NEW JERSEY**

SOIL ENHANCEMENT

(acre)

CODE 752

DEFINITION

The management of soil to increase the efficiency of nutrient and moisture holding capability by number, size and connectivity of the pore system by maintaining or improving soil structure in all soil horizons.

PURPOSE

- To reduce runoff
- To increase soil productivity
- To increase percolation of water
- To increase the soil water holding capacity
- To increase carbon sequestration
- To improve soil tilth
- To reduce soil erosion

CONDITIONS WHERE PRACTICE APPLIES

On all lands where tillage occurs for the purpose of growing a crop. This includes hayland and pastureland where it is part of a rotation including crops.

CRITERIA

General Criteria Applicable to all Purposes

A Soil Management System is comprised of at least 3 of the 5 following Conservation Practices

- Cover and Green Manure Crop - Code 328
- Residue Management - Codes 329A, 329B, 329C, 332 and 344
- Stripcropping - Codes 585 & 586
- Conservation Crop Rotation - Code 328
- Alley Cropping - Code 311

In addition,

- Rotations containing vegetables must also include a legume crop at least once every three years.
- Soils with a known existing plow pan must also include the Conservation Practice Chiseling and Subsoiling - Code 324.
- A Soil Quality Assessment Worksheet (attached) must be completed by the cooperators annually on a per field basis.
- Tillage and/or driving over fields should only occur at the following soil moisture levels:

Soil Texture Soil Moisture (%)

Silty Clay	17-22
Clay Loam	12-17
Silty Clay Loam	7-13
Sandy Loam	5-10
Loamy Sand	2-7

CONSIDERATIONS

All considerations listed under the above component Conservation Practices should be evaluated. Also consider:

- Reducing equipment passes over the field
- Increasing organic matter by using supplemental organic matter
- Confining wheel traffic on fields
- Using lighter equipment
- Using equipment with dual tires, inflated to the appropriate pressure

PLANS AND SPECIFICATIONS

- Specify the Conservation Practices used.
- Specify where and when the practice will occur.
- Specify the crops grown.
- Specify the management objectives of the practice.
- Specify the appropriate soil moisture levels for wheeled traffic for each field

OPERATION AND MAINTENANCE

The purpose of operation, maintenance, and management is to insure that the practice functions as intended over time. Care must be taken to follow chosen conservation practices. Deviation from the Practices and Considerations may ruin soil improvements that took many years to obtain. Followup should be done annually to ensure that the Soil Quality Assessment Worksheet has been completed and that adjustments are made to the system. Landowners must agree to period soil testing by NRCS personnel.

REFERENCES

1. National Handbook of Conservation Practices, USDA-NRCS, Washington, D.C.
2. Marshall T.J. and J.W. Holmes. Soil Physics. Cambridge Univ. Press. 1979. 338pp.
3. Soil Quality - Agronomy. Technical Note No.1. Soil Quality Is Critical Factor in Management of Natural Resources, USDA-NRCS, Soil Quality Institute. Ames, IA

Soil Quality Assessment Worksheet

Field ID _____ Tract ID _____ Cooperator Signature _____ Date _____

Indicator	Descriptions			√ Rating			Comments
	Good (8-10)	Medium (4-7)	Poor (1-3)	Good	Medium	Poor	
Soil Tilth ☹ ➤	Mellow; Pliable; Crumbly; Clods easily broken apart by tillage	Firm; Some large clods; Clods can be broken apart by tillage	Hard Dense chunks; Tight; No structure; Difficult to break apart by tillage				
Compaction ☹ ➤	Little resistance to penetration by soil probe, wire flag, tillage implement, etc.; No hard pan	Some resistance to penetration by soil probe, shovel, wire flag, tillage implement, etc.	High resistance to penetration by soil probe, shovel, wire flag, tillage implement, etc.; Hard pan present				
Plant Growth ☹	Healthy uniform plant growth; Consistent good yields; Crops resist stress, such as drought	Plant health varies; Inconsistent yields; Crops somewhat resistant to stress	Spotty, uneven crops; Plants unhealthy; Consistently poor yield; Crops susceptible to stress				
Soil Life ☹	Signs of earthworms and other soil life common. (worms, worm casts, worm holes, etc)	Occasional signs of earthworms and other soil life. (worms, worm casts, worm holes, etc)	No visible signs of earthworms and other soil life. (worms, worm casts, worm holes, etc)				
Soil Organic Matter ➤	Dark color; visible organic material; Earthy smell; high organic matter soil test	Medium organic matter soil test	Light color; No visible organic material in soil; No smell; Low organic matter soil test				
Plant Roots ☹	Robust, large, deep, well dispersed root system; No obvious restriction to root growth; Many fine roots	Roots present in profile; Some misshapen roots; Some restriction to root growth	Few or no roots present; Roots short, coarse, not uniformly distributed; Roots growing sideways; Obvious restrictions				
Surface Cover ☹	Soil surface covered year round; Little bare soil; Dense sod or other vegetation; Heavy, well distributed residue present	Some residue or vegetation present but soil surface not completely covered. Bare soil during part of the year	Little or no soil cover; Bare soil for much of the year; soil surface crusted				
Water Infiltration and Drainage ♣	Soil drains well after rains; Little or no ponding or runoff following rain; Can get into the field soon after a rain	Water drains slowly with some ponding	Water ponds or runs off following most rains; Long wait to get on the field following rain				
Erosion ☹ ♣	No gullies or visual evidence of erosion; any runoff that occurs is generally clear; Deep topsoil	Some visual signs of erosion; Cloudy runoff	Obvious signs of erosion; Muddy runoff; Shallow topsoil; Subsoil showing at the surface				
Other							

Best Assessed: ☹=Anytime; ➤=with adequate moisture; ♣=after rain; ☹=during growing season

**NRCS, NJFOTG
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Conservation practice standards are reviewed periodically and updated as needed. The most current version of this standard can be obtained on our website at: <http://www.nrcs.usda.gov/technical/efotg/>